

ATTACHMENT 1

1. (Amended) A semiconductor device comprising:

a buffer semiconductor layer made of $\text{Al}_{1-s-t}\text{Ga}_s\text{In}_t\text{N}$ ($0 \leq s \leq 1$, $0 \leq t \leq 1$, $s+t \leq 1$) and having a number of pinholes formed therein;

a thermal distortion reducing layer made of $\text{Al}_{1-u-v}\text{Ga}_u\text{In}_v\text{N}$ ($0 \leq u \leq 1$, $[0 \leq v \leq 1]$ $0 \leq v \leq 1$, $u+v \leq 1$) formed on said buffer semiconductor layer and having a different chemical formula from that of said buffer semiconductor layer;

a first cladding layer formed on said thermal distortion reducing layer;

an active layer formed on said first cladding layer; and

a second cladding layer formed on said active layer.

24. (Amended) A semiconductor device comprising:

a substrate;

a buffer layer formed on said substrate and comprising a first layer made of $\text{Al}_{1-s-t}\text{Ga}_s\text{In}_t\text{N}$ ($0 \leq s \leq 1$, $0 \leq t \leq 1$, $s+t \leq 1$) and a second layer made of $\text{Al}_{1-u-v}\text{Ga}_u\text{In}_v\text{N}$ ($0 \leq u \leq 1$, $0 \leq v \leq 1$, $u+v \leq 1$) formed on said first layer and having a different chemical formula from that of said first layer;

a first cladding layer formed over said second layer;

an active layer formed over said first cladding layer; and

a second cladding layer formed over said active layer,

wherein said buffer layer comprises means for controlling polarity of a growth surface, said growth surface comprising at least a portion of a surface of said substrate.

31. (Amended) A semiconductor device comprising:

a substrate;

a buffer layer formed on said substrate and made of $\text{Al}_{1-s-t}\text{Ga}_s\text{In}_t\text{N}$ ($0 \leq s \leq 1$, $0 \leq t \leq 1$, $s+t \leq 1$);

a thermal distortion reducing layer made of $\text{Al}_{1-u-v}\text{Ga}_u\text{In}_v\text{N}$ ($0 \leq u \leq 1$, $0 \leq v \leq 1$, $u+v \leq 1$)
formed on said buffer layer and having a different chemical formula from that of said buffer layer;

a first cladding layer formed over said thermal distortion reducing layer;

an active layer formed over said first cladding layer; and

a second cladding layer formed over said active layer,

wherein said buffer layer comprises means for controlling polarity of a growth surface of said thermal distortion reducing layer, said growth surface comprising at least a portion of a surface of said substrate.

54. (Amended) A semiconductor device comprising:

a substrate;

a buffer layer comprising a first layer made of $\text{Al}_{1-s-t}\text{Ga}_s\text{In}_t\text{N}$ ($0 \leq s \leq 1$, $0 \leq t \leq 1$, $s+t \leq 1$)
formed on said substrate;

[and] a second layer made of $\text{Al}_{1-u-v}\text{Ga}_u\text{In}_v\text{N}$ ($0 \leq u \leq 1$, $0 \leq v \leq 1$, $u+v \leq 1$) formed on said first layer and having a different chemical formula from that of said first layer;

a first cladding layer formed over said second layer;

an active layer formed over said first cladding layer; and

a second cladding layer formed over said active layer,

wherein said first layer comprises pinholes.

64. (Amended) A semiconductor device comprising:

a substrate;

a buffer layer made of $\text{Al}_{1-s-t}\text{Ga}_s\text{In}_t\text{N}$ ($0 \leq s \leq 1$, $0 \leq t \leq 1$, $s+t \leq 1$) formed on said substrate;

a thermal distortion reducing layer made of $\text{Al}_{1-u-v}\text{Ga}_u\text{In}_v\text{N}$ ($0 \leq u \leq 1, 0 \leq v \leq 1, u+v \leq 1$)
formed on said buffer layer and having a different chemical formula from that of said buffer
layer;

a first cladding layer formed over said thermal distortion reducing layer;

an active layer formed over said first cladding layer; and

a second cladding layer formed over said active layer,

wherein said buffer layer comprises crystals formed on said substrate, said crystals
having intervals therebetween so as to expose said substrate.

74. (Amended) A semiconductor device comprising:

a substrate;

a buffer layer comprising a first layer made of $\text{Al}_{1-s-t}\text{Ga}_s\text{In}_t\text{N}$ ($0 \leq s \leq 1, 0 \leq t \leq 1, s+t \leq 1$)
formed on said substrate and a second layer made of $\text{Al}_{1-u-v}\text{Ga}_u\text{In}_v\text{N}$ ($0 \leq u \leq 1, 0 \leq v \leq 1, u+v \leq 1$)
formed to contact said first layer and said substrate and having a different chemical formula
from that of said first layer;

a first cladding layer formed over said second layer;

an active layer formed over said first cladding layer; and

a second cladding layer formed over said active layer.